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DESIGN FOR A NATIONAL CONVENTION HALL

BY

RICHARD McPHERREN CABEEN

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THIS IS TO CERTIFY THAT THE THESIS PREPARED UNDER MY SUPERVISION BY

RICHARD McPHERREN CABEEN

ENTITLED DESIGN FOR A NATIONAL CONVENTION HALL

IS APPROVED BY ME AS FULFILLING THIS PART OF THE REQUIREMENTS FOR THE

DEGREE OF Bachelor of Science in Architecture

John Watrous Case.
Instructor in Charge

APPROVED: N. Clifford Ricker

HEAD OF DEPARTMENT OF Architecture

DESIGN FOR A NATIONAL CONVENTION HALL.

In the United States of America, at intervals of four years, assemblies of delegates or national conventions are held in some large city to nominate a candidate for the Presidential chair. Each of the great political parties hold these conventions at some time during the months of June and July preceding the election.

The National Convention is made up of delegates from each state and territory to the number of twice the electors in that state or territory, i.e., two delegates for each Congressman and four delegates at large from the state. For every delegate there is an alternate.

In transacting the business of the convention several committees are appointed, these are: Committee on Credentials, Rules and business, Resolutions or Platform, Permanent Organization, Temporary Organization, National Committee, Committee to notify President and a Committee composed of the Chairmen of the Delegations. Each committee is made up of delegates, one from each state and territory and one from the District of Columbia.

To accomodate a national convention the building must have an auditorium with seats on the main floor and in its balconies for about ten-thousand spectators, with special sections for seating delegates preferably higher than the spectators seats.

At the convention of 1908, nine hundred and eighty delegates were present. The delegates section must be closely connected to the corridor and to rooms on either side for the accomodation of messengers, pages etc.

A Speakers platform should be located at the front of the delegates section.

The main floor of the auditorium should be bowled and provide seats for seven to eight thousand spectators allowing each person 7.1 square feet as a minimum.

The uses of this auditorium do not call for a floor bowled as in a theatre so that every spectator may see the stage without interference, so it is possible to provide a floor bowled only one half to two thirds as much as is stipulated in theatre designing.

To obtain the greatest effect in a domed building the balconies should be set back in niches and should not overhang the main floor. They should have a seating capacity of two to three thousand and at the ends near the delegates section should have boxes for the accomodation of noted people attending the convention.

Exits, stairs etc. leading from the main floors and balconies must be ample and designed in accordance with the strictest ordinances and underwriters rules governing public halls with a seating capacity of over six hundred.

The acoustics of this auditorium require a great deal of study, as the ease with which the orators are heard determines to a great extent the commercial value of the building. However in a domed building seating ten thousand spectators, practically all of the reverberating surfaces would be so far from the speaker that only a very small part of the sound would be able to carry to the curved surfaces.

In addition to the main audience room, there should be located on the first floor, rooms for the meetings of special committees, for archives and library, telegraph, telephone and postal service, and banquet hall with a large amount of space devoted to dining rooms, restaurants.

Entrances both from the street and from the subway should open directly into the main lobbies, from which corridors and stairways lead to all parts of the building, with direct exits to the street in case of fire etc.

Six committee rooms will be sufficient to take care of the meetings of the eight special committees and these should provide seats for sixty committeemen each.

Each committeeman should be allowed a desk and a raised platform at the end of the room is necessary for the chairman and secretary of the committee. Offices are connected with each committee room for the use of the chairman and secretary. All these rooms should have direct connections to the committee room and to the corridors.

The library need not be large and will be used principally for storing records of meetings etc.

A banquet hall is necessary and must be large enough to accomodate the chairmen of delegationsand of committees together with their guests.

The telegraph, telephone and postal service should be grouped as closely together as possible. Correspondence rooms and reporters rooms are also a necessity in this department. The telephone office besides being connected to outside exchanges should have a private switchboard connected to telephones in all rooms of a public nature in the building. Entrances for incoming mail ought to be provided and should as private as possible.

The groups of rooms devoted to the restaurants, dining rooms, cafes, etc. should provide means of obtaining either luncheon of the more formal table d'hote and a la carte.

Rooms which are necessary to the convention hall but which need not be closely connected to the convention room may be placed on the second floor. These are club rooms for the delegates,dining rooms, and ladies waiting rooms and parlors. For the amusement and recreation of delegates during the long sessions of the convention, billiard rooms bowling alleys and cafes would be a pleasing addition and from the nature of these rooms they seem best fitted for the basement.

Kitchens , serving rooms, janitors apartments etc are also located in the basement story, and should have private entrances from the street for tradesmen etc.

The facades of a building for a National Convention should be such as to plainly indicate its broad influence over the citizens of the country, its public use and its immense audience room.

Broad entrances from the street and beautiful drives with porte-cochers should connect the building with the avenues on either side and help to beautify the terraced site of the convention hall. The site should be chosen so that the building may stand at the end of a broad boulevard, thus giving an unobstructed view of the principle facade.

The interior decorations of this building ought to be symbolical of the progress of the nation in all the phases of Art, Science, Literature, Commerce, Industry etc.

To accomplish the results toward which this building aims, it should be designed in a style which would leave no doubt in any ones mind as to the magnitude and resource of the United States of America.

A NATIONAL CONVENTION HALL.

An interpretation of the problem including data
and photographs with the text.

A Philanthropist wishing to erect a monument to his name has donated a large sum of money to be used for the erection and maintainence of an edifice suitable for the National Conventions and worthy of a place in the highest rank of architectural achievements.

In addition to serving as a convention hall for political organizations, the building will be leased for conventions of fraternal organizations etc. or it may be used for Grand Opera, Orchestral Concerts etc., since the construction of the building permits that it easily be converted into a theatre.

The building will be placed on a large plot of ground with unobstructed view on all sides, and the grounds surrounding it will be beautified by drives . fountains etc.

Four city blocks will be necessary to provide room for this building and its grounds. A plot of ground in Washington, D.C. fronting on the Mall has been selected.

In this solution of the problem the circular audience room with bowled floor has been adopted. At the front and rear each of the audience are two wings, one on each side and connected by foyers.

On the first floor have been provided the following rooms-

Auditorium containing	54,600 sq. ft.	, seating 7800 spectators
Stage containing	7,500 sq. ft.	, seating 1100 delegates.
Foyer containing	12,000 sq. ft.	
Banquet Hall	5,000 sq. ft.	, seating 450 ,
Three committee rooms	1,500 sq. ft.	,each for 60 seats,
Offices for above	450 sq. ft.	to each committee room,
Restaurant and cafe, each	5,000 sq. ft.	seating 450,
Telegraph service ,etc.	5,000 sq. ft.,	
Library and archives	2,500 sq. ft.	

Four staircases to second floor ,total width 64 feet,Corridor around audience room 25 ft. wide, toilets, retiring rooms, serving and attendants rooms etc.

The auditorium main floor consists of a room 260 feet in diameter, seating 7,800 spectators. The bowled floor with circular seating has a depression of 16 feet from the rear to the stage. Eight feet of this above the foyer level and eight feet below, thus avoiding sinking the stage below ground level. The pitch is four inches in five and one half feet, giving an average rise of about four inches to each row of seats. The aisles are not stepped down but follow a slight curve conforming to a line parallel to the stages on which the seats are placed.

The seating has been designed on a basis of 7.1 sq. ft. per seat including aisles. Forty percent of this is taken up by the aisles and corridor. Aisles have a minimum width of three feet and no two aisles include more than 10 seats.

"Every aisle shall lead directly to an exit. Steps shall not be permitted in aisles except as leading from bank to bank of seats ..... and whenever the rise from bank to bank of seats is less than 5 inches the floor of the aisle shall be made as an inclined plane." (Chicago Ordinance.)

The entrances and exits of the main floor of the audience room have a total width of one hundred and ninty feet thus allowing thirty inches for each one hundred seats.

All doors open on to corridors and thence by direct exits to streets. "The width of corridors passage ways, hallways and doors shall be computed in the same manner...as provided for stairways, except however no corridor shall be less than four feet wide and no doorway less than three feet wide-"" (Extract Chicago Bldg. Ordinance.)

Surrounding the audience room on three sides is a balcony seating two thousand, eight hundred people. This balcony conforms to the shape of the main floor, and projects very slightly into the circular dome, being placed in niches at the rear and sides. The balcony is so bowled that every spectator has an unobstructed view of the speakers platform.

Boxes for notables are located at the ends of the balcony nearest the stage and have seperate exits.

Throughout the main floor and balcony the seats are opera chairs twenty-two inches wide. The rows of seats are two feet ten inches back to back and contain ten seats each between aisles. " More than ten seats in one row between aisles shall not be lawful. Seats shall not be less than twenty-two inches in width, measured at the top of the seat backs. Rows of seats shall not be less than two feet ten inches back to back." (Chicago city ordinances."

Exits from the balcony are designed at the rate of fifty-five inches for each one hundred seats.

A large pendentive dome will cover the auditorium and its panels will serve for mural decorations. The inner diameter of this dome is two hundred and sixty feet,the arches between the pendentives spring from the balcony level and have a radius of seventy eight feet. These arches form the intersection between the dome and the vaults which cover the niches containing the balconies and stage.

At the crown of the dome will be a beautiful glass skylight sixty feet in diameter around which will be a promenade connected to the second floor by a staircase between the outer and inner shells of the dome.

A great deal of care will be taken to have the acoustic properties of this dome perfect. This will be accomplished to a great extent by the relief decoration of the dome and by covering the panels with non-reverberating material.

The delegates section will be divided from the audience room by an arch one hundred feet in diameter and seventy five feet high. Should the auditorium be used for Grand Opera etc. a specially constructed proscenium arch may be lowered from the fly galleries concealed above. This arch will be fifty five feet wide and thirty five feet high.

All machinery for operating curtains, flys etc. is to be in a concealed fly gallery, in order to use the scenery etc. hinged panels in the ceiling of the delegates section are raised.

The sloping floor of the delegates section is temporary and when removed leaves a level stage. The seating is figured on the same basis as in the audience room.

Across the front of the auditorium extends the grand foyer. This is connected to the street by three large arched entrances. The foyer is covered by a tunnel vault and is two stories high with a balcony between columns at second floor level thus enabling visitors to view the mural decorations in the coffers of the vault.

From the grand foyer to the auditorium floor is a rise of eight feet which is taken care of by twelve steps in two flights. These steps are contained in a lobby between the grand foyer and the audience room . A either end of the grand foyer and seperated from it by columns is another foyer sixty four feet wide and eighty feet long. These foyers project in front of the grand foyer and in elevation form pylons to stop the entrance arcade. These foyers connect with the staircase halls and restaurant wing at one end and staircase halls and public service wing at the other end.

The grand staircase halls are four in number and are placed at the oblique axes of the building. They are connected on each side of the building by corridors twenty five wide running around the building. This corridor is covered by an annular tunnel vault and is decorated by columns.

This corridor is seperated from the audience room by a space eight feet wide between two walls. This space contains cloak and toilet rooms as wellas steps up and down from corridor to audience room.

At the rear of the building on the left side is the wing containing committee rooms and their attendant rooms.

On the right side is the wing containing library and banquet hall. Across the rear of the building, back of the stage is a corridor and lobby corresponding to those on the main front but not nearly so spacious.

This is connected at either end by corridors to the rear taircase halls. Connected to this last mentioned corridor are the stage and attendants rooms and on the left side to the lobby of the delegates wing and on the right side to the lobby of the library and banquet hall.

In the lobby to the delegates wing is a staircase to the second floor and entrances to the three committee rooms on the first floor. These committee rooms contain fifteen hundred square feet each and have offices for the chairman and secretary connected to them. The committee rooms have desks for sixty delegates , which allows about twenty five square feet for each delegate. For the chairman and secretary the is a raised platform at one end of the room, with desks and chairs. The offices and toilet rooms connected with the committee rooms on the first floor have a total area of about fifteen hundred square feet. All offices have doorways from the committee rooms and also entrances from the foyers.

In the right wing is the library and depositary of archives containing fifteen hundred square feet of space open to the public and one thousand square feet reserved for archives and stacks. The public space is divided into alcoves with book shelves in each. Corresponding to the left wing a staircase rises from the lobby of this wing to the second floor. Both these staircases are of a private nature.

The greater portion of the right wing is taken up by the banquet hall and serving rooms. All kitchens etc. are in the basement and are connected to the main floor by elevators, private staircases and dumb waiters.

The banquet hall is forty-four feet by one hundred and six feet and is two stories in height with a balcony at the second floor level. The entire room is covered with a tunnel vault with half domes at the ends . During conventions this will be used for a dining and banquet hall and at other times will be well adapted for the exhibition of paintings, sculpture etc. When used as a banquet hall it will easily seat four hundred people.

At the front of the building in the left wing is the group of rooms comprising a restaurant and cafe on the first floor, and a cafe and all serving rooms and kitchens in the basement. Toilets,cloakrooms etc aoe connected to the cafes.

Between the foyers and restaurant wing is a linking member which contains stairways to the basement ,the second floor and to the subway or under ground railway. There is also an entrance to the cafes from the grand staircase halls.

In the right wing are located a post office, telegraph office, telephone office, rooms for reporters, railroad offices, newspaper stands and writing rooms. As in the opposite wing there are staircases to the second floor and to the billiard rooms ind the basement as well as to the subway. Directly under the grand foyer are the bowling alleys.

Midway between the wings on each side are placed the porte cochers and entrances from the side streets.

The lobbies and corridors subservient to the audience room on the first floor have an area of forty seven thousand,five hundred square feet. This allows four and six tenths square feet per seat in the audience room. " The foyers on each floor shall be sufficient to accomodate the audience on that floor at the rate of one and one half square feet per seat ." (Building Ordinance, Boston, Mass.)

The four grand staircase halls are circular in shape and have a total width of stairs of sixty four feet, thus allowing thirty inches for each one hundred seats in the balcony. Besides these grand staircases there are four staircases in the wings which are easily accessable to the balconies. " Stairways offering ingress or egress from any room used for the purposes of Class V (theatres, etc.) shall be in width equivalent to twenty inches for every one hundred of seating capacity of such room,---." (Extract from the Building Ordinances of the City of Chicago.)

The stairs are divided into four foot width by handrails.

The staircase halls are covered on the interior by domes which however do not show on the exterior.

The second floor has the following rooms:-

Balcony to audience room, 16,000 sq. ft., seating 2800.
Three committee rooms as in first floor,
Dining room 5700 square feet,
Club Room for delegates 5700 square feet,
Two salons, about three thousand square feet each,
Balconies to grand foyer and to banquet hall.
Corridors, staircases, toilets etc.

In the second or balcony floor of the convention hall, the four grand staircases open into the vestibules and lobbies of the auditorium balcony. In each of these is an area of twelve hundred and fifty square feet with one hundred and twenty eight lineal feet of doors opening into the balconies. This allows fifty five inches for each one hundred seats.

Attached to the staircase halls and to the rear balcony of the auditorium are two salons, one ateach end of the grand foyers and above the secondary foyers of the first floor. These rooms are fitted as meeting places or general lounging rooms and open onto the balconies of the grand foyer. These rooms are connected by a passage along the balconies of the grand foyer and beneath the rear balcony of the audience room.

In the second story of the left front wing is a staircase hall and lobby and a dining room, the latter being served from kitchens in the basement.

In the right wing is a club room and reading room for the delegates. In its lobby is a staircase to the first floor. Passages under the balconies and above the first story corridors connect the front and rear wings on each side.

The left rear wing in the second story is identical with the first story, and is connected to the right rear wing by a corridor behind the stage.

The right rear wing contains a ladies waiting room above the library and the staircase hall and lobby open onto the balconies of the banquet hall. Spiral staircases connect the second floor with the fly galleries and lantern of dome.

In elevation this building will plainly illustrate the arrangement of its interior. The most prominent motif will be dome of the auditorium, in front of this is a large cylindrical roof covering the grand foyer.

The main entrance is composed of three massive arches, opening thru loggias into the grand foyer. This arcade is stopped at the ends by a pylon, back of which is the secondary foyer. The wings are designed to indicate the size of the rooms which they contain and are covered by hipped roofs of curved section, such as are used in French Buildings. Each wing has a seperate entrance on a side street.

There are two walks for visitors around the dome, one at the lower edge and one at the base of the lantern.

The lantern will be equipped with apparatus for flashing results of the conventions.

The entire building will be decorated on the interior by paintings etc. A classic treatment will be followed as closely as is possible. All foyers and other public space will be enriched with marble columns, wainscot, pavement etc. Ceilings will be paneled in plaster and decorated with paintings in frescoe.

The exterior of th building has been designed in Classic and French Renaissance since these styles seem best adapted to a monumental building. A Corinthian order of columns and pilasters surrounds the wings of the edifice, while the drum of the dome which above the balcony level is devoid of windows, is treated in Doric pilasters with carved panels between.

Since no Convention Hall has up to this time been built, and previous conventions have been held in huge pavilions, it was impossible to procure much data on the problem except thru the daily newspapers and from large auditoriums and coliseums of similiar seating capacity.

The entire design complies with the strictest city ordinances and underwriters rules.

Drawings submitted are:-

First and second floor plans at 1/32 inch to one foot.
Front elevation at one sixteenth inch to one foot,
Side elevation at one sixteenth inch to one foot.
Longitudinal section at one sixteenth inch to one foot.

The text includes a brief on the general status of a National Convention hall and a description of the problem submitted as a thesis.

DATA SHEET.

Name of room.	Floor space.	Seating.	Per seat.	Aisles.
Audience room	54,600 sq.ft	7800	7.1 sq ft	40%
Balcony	18,000 " "	2800	6.0	30%
Delegates section	7,500	1100	6.8	30%
Committee rooms	1,500	60	25.	
Banquet hall	5,000	400	12.5	
		Accomodating	Each 100 seats.	
Foyers 1st. floor	47,500	10,600	4.6 sq.ft.	
Foyers 2nd. floor	12,000	2,800	4.0	
	Lin. ft.width		Each 100 seats	
Staircases	64 feet	2,800	30 inches	
Exits balcony	128	2,800	55 "	
Exits audience room	190	7,800	30 "	
Exits building	200	10,600	22.6 "	
Toilets, etc.	6900 sq.ft.	10,600		

Concerning acoustics.

If the distance from the speaker to the reverberating surface plus the distance from such surface to the seats, exceeds the distance from the speaker to the seats by twenty-five feet, the echo will clash with the direct sound and produce disagreeable sounds. When less than twenty five feet ,the sounds will only reinforce each other.

If the reverberating surface is a plane the sound after being echoed lessens in intensity and covers more area.

If such surface be convex the sound is spread to such an extent that no harm results. If the surface is concave the sound rays may be brought to a focus an in this case will be very unpleasant.

The study of acoustics differs hardly at all from the study of optics.

LIST of ROOMS.

First floor.

Audience room, main floor	54,600 sq. ft.
Stage for delegates	7,500 sq. ft.
Foyers, main lobbies etc.	12,000 sq. ft.
Banquet hall	5,000 sq. ft.
Restaurant and cafe	5,000 sq. ft.
Three committee rooms, each	1,500 sq. ft.
Offices to above, each	450 sq. ft.
Telegraph, post office etc.	5,000 sq. ft.
Library, archives etc.	2,500 sq. ft.
Corridors etc.	35,500 sq. ft.
Toilets and attendants rooms	6,000 sq. ft.
Main staircases	64 lineal feet
Secondary staircases	32 lineal feet.

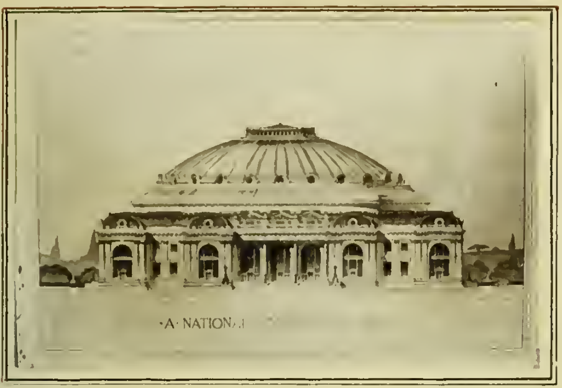
Second floor.

Balcony to main audience room	16,000 sq. ft.
Three committee rooms each	1,500 sq. ft.
Dining room	5,700 sq. ft.
Club room for delegates	5,700 sq. ft.
Two salons for delegates, each	4,000 sq. ft.
Corridors etc.	6,000 sq. ft.
Toilets	1,000 sq. ft.

Basement.

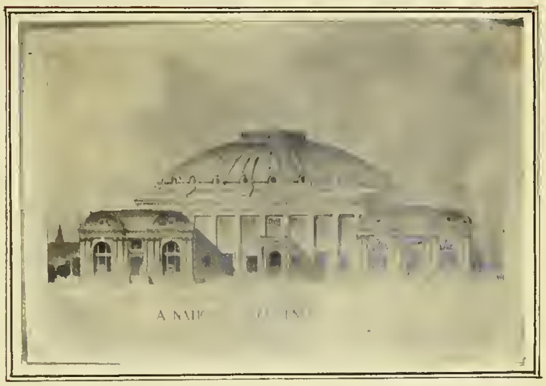
Billiard rooms,	4,000 sq. ft.
Bowling alleys	4,000 sq. ft.
Serving rooms, kitchens etc	6,000 sq. ft.

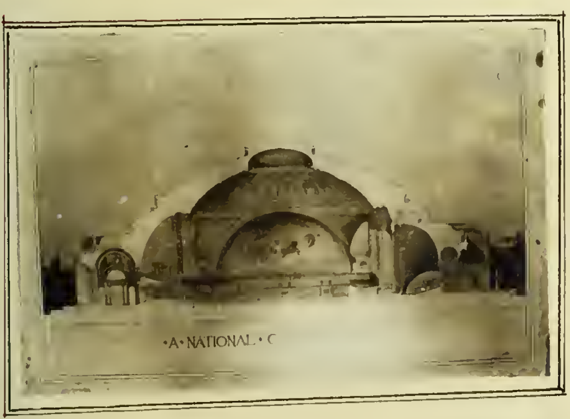
Remainder of basement devoted to rooms for storage heating and ventilating etc.



THE
PRINCIPAL
FACADE

THE
LATERAL
ELEVATION





THE
LONGITVDINAL
SECTION

FIRST AND
SECOND FLOOR
PLANS